

Claims

1-A wrinkle reducing composition, comprising:

A. a wrinkle reducing active, comprising a polymer selected from

I-a silicone grafted adhesive copolymer having a molecular weight of from 10,000 to 1,000,000, which has an organic polymeric backbone having grafted to it monovalent siloxane polymeric moieties, said copolymer comprising C monomers and components selected from the group consisting of A monomers, B monomers, and mixtures thereof; wherein:

a. A is at least one free radically polymerizable organic monomer, the amount by weight of A monomer, when used, being up to about 100% of the total weight of all monomers in said backbone;

b. B is at least one reinforcing monomer copolymerizable with A, the amount by weight of B monomer, when used, being up to about 100% of the total weight of all monomers in said backbone, said B monomer being selected from the group consisting of polar monomers and macromers; and

c. C is a polymeric monomer copolymerizable with said A monomer and said B monomer, said C monomer having a having a molecular weight of from about 1,000 to about 50,000; and having the general formula:



wherein:

X is a vinyl group copolymerizable with said A monomers and said B monomers;

Y is a divalent linking group;

R is a hydrogen, lower alkyl, aryl or alkoxy;

Z is a monovalent siloxane polymeric moiety having a number average molecular weight of at least about 500, is essentially unreactive under copolymerization conditions, and is pendant from said polymeric backbone after copolymerization;

n is 0 or 1;

m is an integer from 1 to 3; and

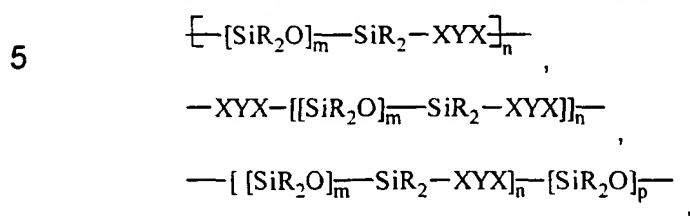
wherein C comprises from about 0.01% to about 50% of the copolymer; and

II-a polymer having a weight average molecular weight from 5000 to 1,000,000, which has an organic polymeric backbone, said copolymer comprising monomers selected from the group consisting of A monomers, B monomers and mixtures thereof, wherein said copolymer is prepared by the polymerisation combination of the following relative weight percentages of said A monomers, and said B monomers:

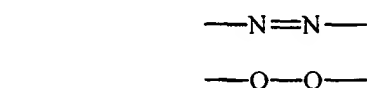
a- from 0% to about 100%, by weight of said copolymer, of a hydrophobic, A monomer, free radically copolymerizable with said B monomers;

b. from 0% to about 100%, by weight of said copolymer, of a hydrophilic reinforcing B monomer, copolymerizable with said A monomer, said B monomer being selected from the group consisting of polar monomers and macromers and mixtures thereof; and

III- an adhesive block copolymer having a weight average molecular weight from about 10,000 grams/mole to about 10,000,000 grams/mole and which is formed from the free radical polymerization of an ethylenically unsaturated monomer with a silicone macroinitiator selected from the group consisting of



and combinations thereof, wherein each R is independently selected from the group consisting of C1-C10 alkyl, phenyl, C1-C10 alkyl-substituted phenyl, and mixtures thereof, X is a divalent radical, Y is selected from the group consisting of



and combinations thereof; and m, n, and p are positive integers independently having a value of 1 or greater; and  
wherein the silicone macroinitiator has a number average molecular weight from about 500 grams/mole to about 500,000 grams/mole, and the  
5 ethylenically unsaturated monomers are copolymerizable and form one or more polymeric blocks within the adhesive block copolymer having a Tg value of from about -20°C to about 60°C.

IV-mixtures thereof;

B-a water-solubilising agent;

C-a liquid aqueous carrier, and

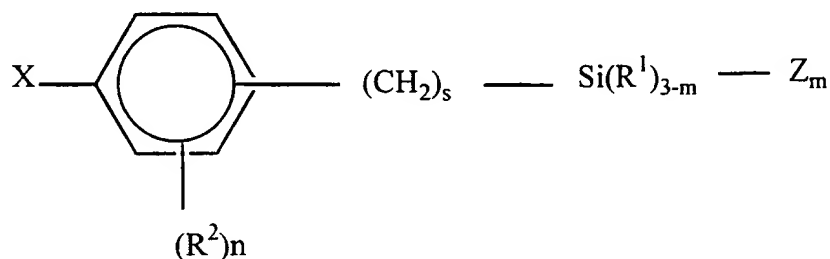
wherein when the polymer is as defined under (I) or (II) said water-solubilising agent is in amount of less than 5% by weight of the composition and is selected from water-soluble anionic surfactant, water-soluble nonionic surfactant, and mixtures thereof.

2-A composition according to Claim 1, wherein said hydrophobic, A monomer is a vinyl monomer, preferably selected from the group consisting of acrylic acid esters, methacrylic acid esters, vinyl compounds, vinylidene compounds, unsaturated hydrocarbons, C<sub>1</sub>-C<sub>18</sub> alcohol esters of organic acids and organic acid anhydrides, and mixtures thereof, preferably is selected from the group consisting of t-butyl acrylate, t-butyl methacrylate, t-butyl styrene, n-butyl methacrylate, n-butyl acrylate, isobutyl methacrylate, 2-ethylhexyl methacrylate, methyl methacrylate, and mixtures thereof.

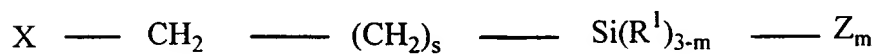
3-A composition according to Claim 1, wherein said hydrophilic, reinforcing B monomer is selected from the group consisting of unsaturated organic mono- and polycarboxylic acids, unsaturated (meth)acrylates, unsaturated (meth)acrylamides, unsaturated (meth)acrylate alcohols, unsaturated aminoalkylacrylates, unsaturated organic acid anhydrides, unsaturated esters of organic acid anhydrides, hydrophilic unsaturated vinyl compounds, hydrophilic unsaturated allyl compounds, hydrophilic unsaturated imides, salts of the foregoing compounds, and mixtures thereof, preferably is selected from the

group consisting of acrylic acid, methacrylic acid, N,N-dimethyl acrylamide, methacrylamide, N t-butyl arylamide, dimethylamino ethyl methacrylate, t-butyl acrylamide, vinyl pyrrolidone, salts thereof and alkyl quaternized derivatives thereof, and mixtures thereof.

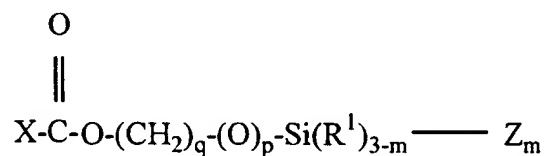
4-A composition according to Claim 1, wherein said polysiloxane-containing C monomer has a formula selected from the following group:

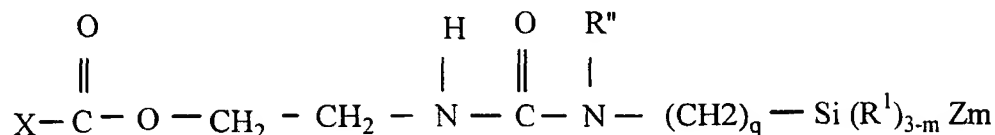
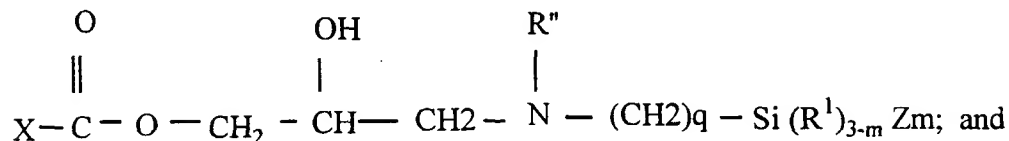
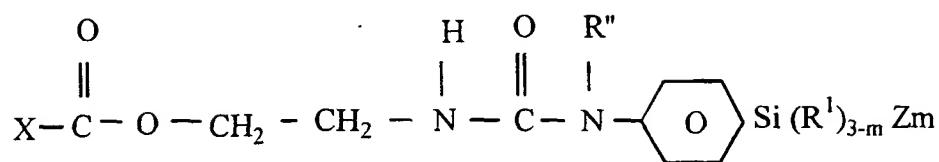
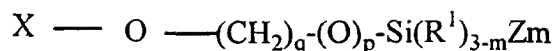


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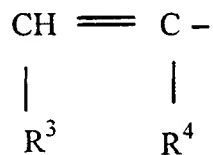


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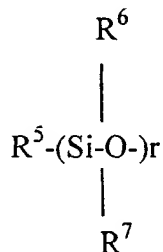




wherein s is an integer from 0 to about 6; m is an integer from 1 to 3; p is 0 or 1; q is an integer from 2 to 6; n is an integer from 0 to 4; R<sup>1</sup> is hydrogen, hydroxyl, lower alkyl, alkoxy, alkylamino, aryl, or alkaryl; R<sup>2</sup> is C<sub>1</sub>-C<sub>10</sub> alkyl or C<sub>7</sub>-C<sub>10</sub> alkylaryl; R'' is alkyl or hydrogen; X is



wherein R<sup>3</sup> is hydrogen or —COOH; R<sup>4</sup> is hydrogen, methyl or —CH<sub>2</sub>COOH; Z is



R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup>, independently are lower alkyl, alkoxy, alkylamino, aryl, alkaryl, hydrogen or hydroxyl; and r is an integer of from about 5 to about 700.

5-A composition according to any one of Claims 1-4, wherein the polymer is present in an amount of from 0.05% to about 5.0%, preferably from about 0.1%

to about 2.0%, more preferably from about 0.2% to about 1.0% by weight of the composition.

6-A composition according to any one of Claims 1-5, wherein the solubilising agent is a nonionic surfactant, preferably a branched nonionic surfactant.

7-A composition according to Claim 6, wherein said solubilising agent is an anionic surfactant, preferably an alkylsulphosuccinate surfactant.

8-A composition according to any one of Claims 1-7, wherein the solubilising agent is present in an amount of from 20 to 500% by weight, preferably from 50% to 200% by weight, most preferably from 75% to 150% by weight of the polymer concentration.

9- A composition according to any one of Claims 1-7, wherein the solubilising agent is present in an amount of from 0.1 to less than 5%, more preferably from 0.1% to 2.0% by weight of the composition.

10- A composition according to any one of Claims 1-9, wherein the water of the liquid aqueous carrier comprises from 50% to 95%, by weight of the composition, preferably from 60% to 97%, more preferably from 70% to 99%, by weight of the composition.

11-A composition according to any one of Claims 1-10, wherein the composition further comprises a nonionic polyhydric alcohol humectant, preferably said humectant is a polyol having from 2 to 8 hydroxy groups, more preferably is selected from glycerol, ethylene glycol, propylene glycol, diethylene glycol, dipropylene glycol, sorbitol, erythritol or mixtures thereof.

12-A composition according to Claim 11, wherein the nonionic humectant is present in amount of from 0.01% to about 10%, by weight of the composition, preferably from about 0.1% to about 3%, more preferably from about 0.1% to about 1.5%, by weight of the composition.

13-A composition according to any one of Claims 1-12, wherein said composition further comprises a lubricant selected from a water-insoluble cationic softener,

nonionic softener selected from cyclomethicones, fatty acid esters of mono- or polyhydric alcohols or anhydride thereof containing from 1 to 8 carbon atoms, and mixtures thereof.

14- A composition according to any one of Claim 1-13, wherein said composition further comprises an uncomplexed cyclodextrin, preferably selected from beta-cyclodextrin, alpha-cyclodextrin, gamma-cyclodextrin, derivatives of said cyclodextrins, and mixtures thereof.

15-A composition according to any one of Claim 1-14, wherein the pH of said composition is from about 7 to about 12.

16- A composition according to any one of Claim 1-15, wherein said composition has a fluid surface tension of from about 20 dynes/cm to about 55 dynes/cm.

17-A composition according to any one of Claim 1-16, wherein said composition has a fluid viscosity of from about 1 cps to about 50 cps.

18-A method for reducing or removing wrinkles on fabrics which comprises the steps of contacting the fabrics with a composition as defined in any one of Claims 1-17.

19- A process for solubilising or dispersing a polymer as defined in any one of Claims 1-4 by means of a solubilising agent selected from water-soluble surfactants and mixtures thereof.

20-A method for reducing or removing wrinkles on fabrics and malodours on fabrics which comprises the steps of contacting the fabrics with a composition as defined in Claim 17.

21-A method according to anyone of Claim 18-20, wherein the composition is contacted with the fabrics by means of a spray dispenser.

22-A method according to anyone of Claim 18-21, wherein the fabrics are placed into a dewrinkling apparatus.

23-A method according to Claim 22, wherein the apparatus comprises spraying means capable of providing droplets with a mean diameter of 3 to 50  $\mu\text{m}$ .

24-A packaged composition comprising the composition of any one of Claims 1-17, in a spray dispenser.

25-A packaged composition according to Claim 24 or method according to Claim 21, wherein said spray dispenser comprises a trigger spray device and is capable of providing droplets with a weight average diameter of from 8 to 100  $\mu\text{m}$ .